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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/785,992

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Juichi Arai

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EXAMINER

PARSONS, THOMAS H

ART UNIT

PAPER NUMBER

1745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

12/21/2006

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/785,992

Applicant(s)

ARAI ET AL.

Examiner

Thomas H. Parsons

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-12 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5-12, 15-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

***Response to Amendment***

This is in response to the Amendment filed 30 November 2006.

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

***(Previous) DETAILED ACTION***

2. The rejections of claims 1, 3-8 and 11-18 under 35 U.S.C. 103(a) as being unpatentable over Tomiyama et al. (5,665,491) in view of Fautex (5,219,680) have been **withdrawn**.

***(New) DETAILED ACTION***

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 5-8, 11-12, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomiyama et al. (5,665,491) in view of Watanabe et al. (6,459,564).

**Claim 1:** Tomiyama et al. in Figure 1 disclose an electrochemical energy storage device, comprising:

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a positive electrode provided with a positive electrode collector and positive electrode active material (1) which is held by the positive electrode collector and can occlude/emit (i.e. intercalate/deintercalate) a metal ion (col. 4: 42-col. 5: 30 and col. 5: 65-col. 6: 22);

a negative electrode provided with a negative electrode collector and negative electrode active material (2) which is held by the negative electrode collector and which can occlude/emit the metal ion (col. 4: 42-col. 5: 30 and col. 5: 65-col. 6: 22);

a minutely porous separator (3) held between the positive electrode and the negative electrode (col. 12: 59-col. 13: 5); and

an organic electrolyte (col. 11: 32-col. 12: 47), wherein:

Tomiyama et al. do not disclose that at least one of the positive electrode active material and the negative active material carries activated carbon.

Watanabe et al. discloses that both the positive electrode active material and the negative active material carry activated carbon (col. 5: 65-col. 6: 39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the active material of Tomiyama et al. by incorporating the activated carbon of Watanabe et al. because both are concerned with lithium batteries comprising positive and negative electrodes carrying active material, and further, because Watanabe et al. disclose positive and negative electrode active material carrying activated carbon that would have provided high reliability, small leak current during charging, and little increasing in internal resistance thereby improving the overall capacity and performance of the battery.

Further, because the electrochemical energy storage device (i.e. lithium battery) of the Tomiyama et al. combination is structurally the same as that instantly claimed, it obviously would provide an operating range of 0-2V to 4.0-4.2V.

**Claim 3:** Tomiyama et al. disclose a positive electrode collector and a negative electrode collector made of material including carbonaceous material (col. 13: 6-25).

**Claim 5:** Tomiyama et al. disclose that the positive electrode collector and the negative electrode collector are made of a carbon fiber (col. 13: 6-25 which discloses carbon in the form of a fibrous body).

**Claim 6:** Tomiyama et al. disclose that the carbon fiber is woven cloth (col. 13: 6-25 which discloses carbon in the form of a fibrous body).

**Claim 7:** Tomiyama et al. disclose that the positive electrode active material and the negative electrode active material are applied to the carbon fiber (col. 13: 29-31).

**Claim 8:** Tomiyama et al. disclose that both of the positive electrode collector and the positive electrode active material and both of the negative electrode collector and the negative electrode active material are held on metallic foil (col. 13: 6-31 wherein Tomiyama et al. disclose that the current collector can be a metallic foil coated with carbon and the active material mixture).

**Claim 11:** Tomiyama et al. disclose that a lithium salt is dissolved in the organic electrolyte (col. 11: 32-col. 12: 47).

**Claim 12:** Tomiyama et al. disclose that suitable materials for the positive and negative current collector include carbon in the form of a fibrous body. This fibrous carbon body has been broadly construed as encompassing activated carbon.

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**Claim 15:** The rejection of claim 15 is as set forth above in claim 1.

**Claims 16-18:** The recitations therein to the operating voltage range have been construed as a process limitation that adds no further structure to the claimed electrochemical energy storage device. However, as set forth above in claim 1, because the electrochemical energy storage device (i.e. lithium battery) of the Tomiyama et al. combination is structurally the same as that instantly claimed, it obviously would provide an operating voltage range having a lower limit less than 2V, as recited in claim 16, and an upper limit greater than 4.0V, as recited in claims 17 and 18.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomiyama et al. in view of Watanabe et al. as applied to claim 4 above, and further in view of JP9-259891.

Tomiyama et al. and Fauteux are as applied, argued, and disclosed above, and incorporated herein.

**Claims 9 and 10:** The Tomiyama et al. combination does not disclose that the either or both of the positive electrode collector or/and the positive electrode active material and either or

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both of the negative electrode collector or/and the negative electrode active material are held on a plastic sheet or a metallized plastic sheet.

JP9-259891 discloses in Figures 1 and 2 that both of the positive electrode collector and the positive electrode active material and both of the negative electrode collector and the negative electrode active material are held on a plastic sheet or a metallized plastic sheet (abstract and paragraphs [0007]-[0016]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the apparatus of the Tomiyama et al. combination by incorporating the plastic sheet of JP9-259891 because both are concerned with a lithium battery comprising a positive and negative current collector carrying active material, and further because JP9-259891 discloses a plastic sheet for holding both of the positive electrode collector and the positive electrode active material and both of the negative electrode collector and the negative electrode active material that would have improved the safety and reliability by preventing a temperature rise with the rapid cell temperature by an internal short circuit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H. Parsons whose telephone number is (571) 272-1290. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thomas H Parsons  
Examiner  
Art Unit 1745

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PATRICK JOSEPH RYAN  
SENIOR PATENT EXAMINER